

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Terrence John Morris

Art Unit: 3749

Application No.: 10/760,130

Examiner: Alfred Basicas

Filed: 01/16/2004

Attorney Docket No.: 504835-041125

For: BURNER HEADS AND BURNERS

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is filed in response to the final Office Action mailed on 09/04/2007. A Notice of Appeal was filed with a Pre-Appeal Brief Request for Review on 12/03/2007. A Notice of Panel Decision from Pre-Appeal Brief Review was mailed on 02/11/2008. This Appeal Brief is being filed on 04/9/2008 with a Petition for a one month extension from the due date of 03/11/2008. The Commissioner is hereby authorized to charge any necessary fees and credit any overpayment associated with this Appeal Brief to Jones Day Deposit Account No. 501432, ref: 504835-041125.

I. Real Party In Interest

The real party in interest is The North American Manufacturing Company as evidenced by an Assignment recorded on 01/05/2007 at Reel/Frame 018713/0840.

II. Related Appeals And Interferences

There are no related appeals or interferences.

III. Status Of Claims

Independent claim 1 and dependent claims 3-16 are pending, are finally rejected, and are being appealed.

IV. Status Of Amendments

No Amendment has been filed subsequent to the final rejection from which the appellant appeals.

V. Summary Of Claimed Subject Matter

Independent claim 1 defines a burner head. An example of the claimed burner head is shown in Fig. 2 with the reference number 32. The burner head 32 has a tube portion 32a and an end cap 32b. Fuel flows from a supply pipe 14 into the open end of the tube portion 32a. The fuel then flows radially outward through the tube portion 32a to combust with air flowing through the surrounding chamber 20. This is described in the specification at page 4, lines 13-19, with reference to a preceding description of a prior art burner head 16 shown in Fig. 1.

The tube portion 32a of the burner head 32 is formed of wedge wire 36. As shown in Fig. 3, fuel flow passages 40 are formed by gaps between sections of the wedge wire 36. (Other embodiments of the wedge wire 36 are shown in Figs. 4 and 5.) The triangular cross section of the wedge wire 36 causes the passages 40 to broaden in the direction of fuel flow. This is

described in the specification at page 4, line 20 through page 5, line 12. Alternatively, the passages 40 may narrow in the direction of fuel flow, as described at page 6, lines 13-15.

As recited in claim 1, the burner head has a fuel inlet and a firing portion through which fuel flows to be burnt. In the illustrated example of Fig. 2, the fuel inlet is the open end of the tube portion 32a. The firing portion is the wedge wire 36. See page 2, lines 3-7 and page 5, lines 20-25. Claim 1 further recites elongate fuel flow passages with inlet sides and outlet sides that are relatively wider or narrower than each other. The claimed passages are defined by and between spaced apart elements of wedge wire having a generally triangular cross section. The claim is thus supported by the description of the passages 40 between the elements of wedge wire 36.

VI. Grounds Of Rejection To Be Reviewed On Appeal

A. Independent claim 1 and dependent claims 6, 9, 15 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,733,170 to Kobayashi et al. in view of JP01203064 to Arai.

B. Dependent claims 3-5, 7, 8 and 10-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobayashi in view of Arai, and further in view of US Patent No. 5,387,399 to Nishida, et al.

VII. Argument

A. The Rejections of Independent Claim 1 and Dependent Claims 6, 9, 15 and 16 on Kobayashi and Arai

The rejections of claims 1, 6, 9, 15 and 16 on the basis of Kobayashi and Arai are clear error for the following reasons.

1. Arai is Nonanalogous Prior Art

As explained in MPEP Section 2141.01(a), a prior art patent is not analogous to the claimed invention if a person having ordinary skill would not reasonably be expected to look to that prior art for a solution to the problem with which the inventor was concerned.

The inventor in this case was concerned with the problem of stabilizing a flame at a burner head. As explained in the appellant's specification at page 1, lines 15-17, "Whatever the form of burner head it is important, if they are to function correctly, that the flame produced is of the kind required, predictable and stable and that there is low risk of flash-back."

Arai discloses a nozzle for spraying water. It is not reasonable to expect a person of ordinary skill in the art of burners to look to the art of water nozzles to solve the problem of stabilizing a flame. No one concerned with maintaining a stable flame would expect to solve that problem with a water nozzle. It logically follows that the nonanalogous prior art disclosure of Arai could not have made the claimed invention obvious under 35 U.S.C § 103.

2. The Analogous Prior Art Teaches Away

US Patent No. 6,699,035 to Brooker is analogous prior art. Brooker teaches that a wedge wire structure "acts to extinguish a flame passing therethrough." See the Brooker specification at column 5, lines 3-7; at column 9, line 63 through column 10, line 1; and further at column 10, lines 11-15 and 24-26. The analogous prior art thus describes "the flame extinguishing capabilities ... of spiral wound wedge wire screen."

Arai discloses spiral wound wedge wire screen. Accordingly, Brooker teaches that Arai's screen would extinguish Kobayashi's flame and would thereby render Kobayashi's burner inoperative. Even if the incompatibility of water nozzles with burners were not enough to

preclude a combination of Arai with Kobayashi, the inoperative result taught by Brooker would prevent a person of ordinary skill from finding that combination obvious under 35 U.S.C § 103.

3. The Screens are Not Interchangeable

It would not have been obvious “to incorporate the screen arrangement taught by Arai into the invention disclosed by Kobayashi, so as to provide a fine spray” as proposed in the final Office Action at paragraph 3, pages 2-3.

Kobayashi describes a screen in which the woven mesh structure has warp and weft wires that are equally spaced apart. See Kobayashi at column 5, lines 3-10 and 28-32. The “weave length characteristic” makes the burner “especially suited” for heating and drying (column 8, lines 46-48). The Arai screen has no weave length characteristic. Instead, the Arai screen has elongated slit-shaped passages. A person of ordinary skill would thus find the Arai screen inferior for its lack of any weave length characteristic that might match or improve upon the spray of Kobayashi. Since Arai’s screen is not known as an interchangeable alternative with the same predictable result as the Kobayashi screen, but instead is known as an inferior alternative, its substitution for Kobayashi’s screen is precluded rather than made obvious by the references.

B. The Rejections of Dependent Claims 3-5, 7, 8 and 10-14 on Kobayashi, Arai, and Nishida

The final Office Action acknowledges that the combination of Kobayashi and Arai does not include the element orientations recited in dependent claims 3-5, 7, 8 and 10-14. In addition to the reasons given above regarding independent claim 1, the rejections of claims 3-5, 7, 8 and 10-14 are clear error because Nishida does not provide the claimed orientations that are absent from the combination of Kobayashi and Arai.

Nishida discloses various orientations of holders 8 for catalyst bodies 5. The final Office Action at paragraph 4 refers to those orientations for the general proposition that “variations have distinct characteristics and uses depending on the needs of the device.” However, the appellant respectfully submits that i) the needs of Arai’s water nozzle device do not include the catalyst body holders of Nishida, ii) the needs of Kobayashi’s burner device do not include the catalyst body holders of Nishida, iii) Nishida does not disclose triangular wedge wire, and iv) Nishida’s various orientations do not include any of those recited in claims 3-5, 7, 8, or 10-14. Therefore each of claims 3-5, 7, 8 and 10-14 recites structural limitations that are not disclosed in the prior art and could not have been made obvious by the prior art, as addressed separately under the following subheadings.

1. Claim 3

Nishida does not disclose or make obvious the broadening passages between the wedge wires recited in claim 3.

2. Claim 4

Nishida does not disclose or make obvious the narrowing passages between the wedge wires recited in claim 4.

3. Claim 5

Nishida does not disclose or make obvious the spiral winding of wedge wires recited in claim 5.

4. Claim 7

Nishida does not disclose or make obvious the tube of wedge wires recited in claim 7.

5. Claim 8

Nishida does not disclose or make obvious the support members inside the tube of wedge wires recited in claim 8.

6. Claim 10

Nishida does not disclose or make obvious the parallel sided tube of wedge wires recited in claim 10.

7. Claim 11

Nishida does not disclose or make obvious the tapered tube of wedge wires recited in claim 11.

8. Claim 12

Nishida does not disclose or make obvious the straight and perpendicular configuration of wedge wires recited in claim 12.

9. Claim 13

Nishida does not disclose or make obvious the masked passages between the wedge wires recited in claim 13.

10. Claim 14

Nishida does not disclose or make obvious the ceramic masking material over the passages between the wedge wires recited in claim 14.

VIII. Claims Appendix

A claims appendix containing a copy of the claims involved in this appeal is attached.

IX. Evidence Appendix

No evidence is being submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132, nor is there any other evidence entered by the examiner or relied upon by the appellant. An evidence appendix indicating "None" is attached.

X. Related Proceedings Appendix

There are no related proceedings. An related proceedings appendix indicating "None" is attached.

Respectfully submitted,

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CLAIMS APPENDIX

1. A burner head having a fuel inlet and a firing portion through which fuel flows to be burnt, wherein the firing portion has a plurality of elongate fuel flow passages each having an inlet side and an outlet side, one of the inlet and outlet sides being relatively narrower and the other of the inlet and outlet sides being relatively wider with respect to each other, the elongate fuel flow passages being defined by plurality of spaced apart elongate elements formed of wire with the fuel flow passages therebetween, and wherein the wire is wedge wire having a generally triangular cross section.

3. A burner head according to claim 1 wherein the wedge wire is oriented such that the fuel flow passages broaden as the fuel flows through them to be burnt.

4. A burner head according to claim 1 wherein the wedge wire is oriented such that the fuel flow passages narrow as the fuel flows through them to be burnt.

5. A burner head according to claim 1 wherein the firing portion is generally tubular and formed of spirally wound wedge wire secured to support members running axially of the tube.

6. A burner head according to claim 1 wherein the firing portion is generally tubular and formed of rings of wedge wire secured to support members running axially of the tube.

7. A burner head according to claim 1 wherein the firing portion is generally tubular and formed of straight pieces of wedge wire aligned axially and secured to generally circular support members running around the tube.

8. A burner head according to claim 5 wherein the support members are located within the tube.

9. A burner head according to claim 6 wherein the support members are located on the outside of the tube.

10. A burner head according to claim 5 wherein the tube is substantially parallel sided.

11. A burner head according to claim 6 wherein the tube tapers along part or all of its length.

12. A burner head according to claim 1 wherein the firing portion is generally planar and formed of straight pieces of wire aligned in a first direction and secured to generally straight support members aligned in a second direction substantially perpendicular to the first direction.

13. A burner head according to claim 1 wherein selected fuel passages or selected lengths of the fuel passages are masked.

14. A burner head according to claim 13 wherein the selected fuel passages or selected lengths of the fuel passages are masked by a ceramic material.

15. A burner head according to claim 1 including a plurality of firing portions like the firing portion recited in claim 1.

16. A burner including a burner head according to claim 1.

EVIDENCE APPENDIX

NONE

(No evidence is being submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132, nor is there any other evidence entered by the Examiner or relied upon by the Applicant.)

RELATED PROCEEDINGS APPENDIX

NONE

(There are no related proceedings.)